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June 25, 2002

WRITER'S DIRECT NUMBER:
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Commissioner for Patents
Washington, D.C. 20231

Art Unit 1623

Re: U.S. Utility Patent Application
Appl. No. 09/845,157; Filed: May 1, 2001
For: **Thermostable Reverse Transcriptases and Uses Thereof**
Inventors: Smith *et al.*
Our Ref: 0942.5040001/RWE/MTT

Sir:

Transmitted herewith for appropriate action are the following documents:

1. First Supplemental Information Disclosure Statement;
2. List of cited references on Form PTO-1449 (15 sheets);
3. A copy of each reference cited on Form PTO-1449 (43 references); and
4. One (1) Return Postcard.

It is respectfully requested that the attached postcard be stamped with the date of filing of these documents, and that it be returned to our courier. In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

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June 25, 2002
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The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Robert W. Esmond
Attorney for Applicants
Registration No. 32,893

RWE/MTT/dnk
Enclosures

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Smith *et al.*

Appl. No. 09/845,157

Filed: May 1, 2001

For: **Thermostable Reverse
Transcriptases and Uses Thereof**

Confirmation No. 2674

Art Unit: 1623

Examiner: *To be assigned*

Atty. Docket: 0942.5040001/RWE/MTT

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Commissioner for Patents
Washington, D.C. 20231

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98. A copy of each document is also provided.

Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not in issue. Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered. This statement should not be construed as a representation that a search

has been made, or that information more material to the examination of the present patent application does not exist.

This First Supplemental Information Disclosure Statement is being filed before the mailing date of a first Office Action on the merits. No statement or fee is required.

Consideration of the cited documents and making the same of record in the prosecution of the above-identified application is respectfully requested. The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Robert W. Esmond
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FORM PTO-1449

FIRST SUPPLEMENTAL INFORMATION DISCLOSURE
STATEMENTATTY. DOCKET NO.
0942.5040001/RWE/MTTAPPLICATION NO.
09/845,157APPLICANT
Smith et al.FILING DATE
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U. S. PATENT DOCUMENTS

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OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AR	1	Arnold, F.H., et al., "How enzymes adapt: lessons from directed evolution," TRENDS Biochem. Sci. 26:100-106, Elsevier Science Ltd. (February 2001)
	AS	1	Bailey, J.M., "Interpretation of Nitrocellulose Filter Assays of Protein-Nucleic Acid Binding," Anal. Biochem. 93:204-206, Academic Press, Inc. (1979)
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OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AR	2	Bebenek, K., and Kunkel, T.A., "5. The Fidelity of Retroviral Reverse Transcriptases," in <i>Reverse Transcriptase</i> , Skalka, A.M. and Goff, S.P., eds., Cold Spring Harbor Laboratory Press, Plainview, New York, pp. 85-102 (1993)
	AS	2	Bebenek, K., et al., "A minor groove binding track in reverse transcriptase," <i>Nat. Struct. Biol.</i> 4:194-197, Nature Publishing Co. (1997)
	AT	2	Cadwell, R.C., and Joyce, G.F., "Randomization of Genes by PCR Mutagenesis," <i>PCR Meth. Appl.</i> 2:28-33, Cold Spring Harbor Laboratory Press (1992)

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		APPLICANT Smith et al.	
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AR	3	4	Cambillau, C., and Claverie, J.-M., "Structural and Genomic Correlates of Hyperthermostability," <i>J. Biol. Chem.</i> 275:32383-32386, The American Society for Biochemistry and Molecular Biology, Inc. (October 2000)
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	AR	4	DeStefano, J.J., et al., "Characterization of an RNase H deficient mutant of human immunodeficiency virus-1 reverse transcriptase having an aspartate to asparagine change at position 498," <i>Biochim. Biophys. Acta</i> 1219:380-388, Elsevier Science B.V. (1994)
	AS	4	Ding, J., et al., "Structure and Functional Implications of the Polymerase Active Site Region in a Complex of HIV-1 RT with a Double-stranded DNA Template-primer and an Antibody Fab Fragment at 2.8 Å Resolution," <i>J. Mol. Biol.</i> 284:1095-1111, Academic Press, Inc. (1998)
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AT	5	Gerard, G.F., et al., "Reverse Transcriptase. The Use of Cloned Moloney Murine Leukemia Virus Reverse Transcriptase to Synthesize DNA from RNA," <i>Mol. Biotechnol.</i> 8:61-77, Humana Press (1997)

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	AR	6	Harrison, G.P., et al., "Pausing of reverse transcriptase on retroviral RNA templates is influenced by secondary structures both 5' and 3' of the catalytic site," Nucl. Acids Res. 26:3433-3442, Oxford University Press (1998)
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	AT	6	Huang, H., et al., "Structure of a Covalently Trapped Catalytic Complex of HIV-1 Reverse Transcriptase: Implications for Drug Resistance," Science 282:1669-1675, American Association for the Advancement of Science (1998)

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	AS	7	Kohlstaedt, L.A., et al., "Crystal Structure at 3.5 Å Resolution of HIV-1 Reverse Transcriptase Complexed with an Inhibitor," Science 256:1783-1790, American Association for the Advancement of Science (1992)
	AT	7	Kotewicz, M.L., et al., "Isolation of cloned Moloney murine leukemia virus reverse transcriptase lacking ribonuclease H activity," Nucl. Acids Res. 16:265-277, IRL Press Ltd. (1988)

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	/	8	Kneller, D.G., et al., "Improvements in Protein Secondary Structure Prediction by An Enhanced Neural Network," <i>J. Mol. Biol.</i> 214:171-182, Academic Press Ltd. (1990)
	/	8	Krug, M.S., and Berger, S.L., "[33] First-Strand cDNA Synthesis Primed with Oligo(dT)," <i>Meth. Enzymol.</i> 152:316-325, Academic Press, Inc. (1987)
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	AS	9	Kunkel, T.A., et al., "[6] Efficient Site-Directed Mutagenesis Using Uracil-Containing DNA," <i>Meth. Enzymol.</i> 204:125-139, Academic Press, Inc. (1991)
	AT	9	Le Grice, S.F.J., "9. Human Immunodeficiency Virus Reverse Transcriptase," in <i>Reverse Transcriptase</i> , Skalka, A.M. and Goff, S.P., eds., Cold Spring Harbor Laboratory Press, Plainview, NY, pp. 163-191 (1993)

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	AT	10	McDonell, M.W., et al., "Analysis of Restriction Fragments of T7 DNA and Determination of Molecular Weights by Electrophoresis in Neutral and Alkaline Gels," <i>J. Mol. Biol.</i> 110:119-146, Academic Press, Inc. (1977)

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AT	<u>11</u>	Polesky, A.H., et al., "Identification of Residues Critical for the Polymerase Activity of the Klenow Fragment of DNA Polymerase I from <i>Escherichia coli</i> ," <i>J. Biol. Chem.</i> 265:14579-14591, The American Society for Biochemistry and Molecular Biology, Inc. (1990)

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FORM PTO-1449 <u>FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT</u>		ATTY. DOCKET NO. 0942.5040001/RWE/MTT	APPLICATION NO. 09/845,157
		APPLICANT Smith et al.	
		FILING DATE May 1, 2001	GROUP 1623

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
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	AL						Yes No
	AM						Yes No
	AN						Yes No
	AO						Yes No
	AP						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	12	Prasad, V.R., "8. Genetic Analysis of Retroviral Reverse Transcriptase Structure and Function," in <i>Reverse Transcriptase</i> , Skalka, A.M. and Goff, S.P., eds., Cold Spring Harbor Laboratory Press, Plainview, NY, pp. 135-162 (1993)
AS	12	Rost, B., "[31] PHD: Predicting One-Dimensional Protein Structure by Profile-Based Neural Networks," <i>Meth. Enzymol.</i> 266:525-539, Academic Press, Inc. (1996)
AT	12	Shinnick, T.M., et al., "Nucleotide sequence of Moloney murine leukaemia virus," <i>Nature</i> 293:543-548, Macmillan Journals Ltd. (1981)

EXAMINER	DATE CONSIDERED
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.	



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AR	13	Skalka, A.M., "10. Endonuclease Activity Associated with Reverse Transcriptase of Avian Sarcoma-Leukosis Viruses," in <i>Reverse Transcriptase</i> , Skalka, A.M. and Goff, S.P., eds., Cold Spring Harbor Laboratory Press, Plainview, NY, pp. 193-204 (1993)
AS	13	Stemmer, W.P.C., "Rapid evolution of a protein <i>in vitro</i> by DNA shuffling," <i>Nature</i> 370:389-391, Macmillan Journals Ltd. (1994)
AT	13	Strauss, H.S., et al., "Variables affecting the selectivity and efficiency of retention of DNA fragments by <i>E. coli</i> RNA polymerase in the nitrocellulose-filter-binding assay," <i>Gene</i> 13:75-87, Elsevier/North-Holland Biomedical Press (1981)

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AR	14	Tosh, C., et al., "One-Tube and One-Buffer System of RT-PCR Amplification of 1D Gene of Foot-and-Mouth Disease Virus Field Isolates," Acta Virol. 41:153-155, Slovak Academic Press (1997)
AS	14	Verma, I., et al., "Studies on Reverse Transcriptase of RNA Tumor Viruses. III. Properties of Purified Moloney Murine Leukemia Virus DNA Polymerase and Associated RNase H," J. Virol. 15:843-854, American Society for Microbiology (1975)
AT	14	Wells, J.A., "Additivity of Mutational Effects in Proteins," Biochem. 29:8509-8517, The American Chemical Society (1990)

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		APPLICANT Smith et al.	FILING DATE May 1, 2001

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AR	15	✓	Wu, W., et al., "Human Immunodeficiency Virus Type 1 Nucleocapsid Protein Reduces Reverse Transcriptase Pausing at a Secondary Structure near the Murine Leukemia Virus Polypurine Tract," J. Virol. 70:7132-7142, American Society for Microbiology (1996)
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